Caroline
Family Health Team

Medical Directive

Title: Ordering INR Laboratory Investigations to Monitor Warfarin Therapy

Number: C-FHT02
Activation Date: *Review due by:*

Sponsoring/Contact Person(s): ***Kathleen Whittaker, Executive Director***
(Name, position, contact particulars) *905.632.8007 ext 108*
kathleen.w@carolinefht.ca

Order and/or Delegated Procedure:	**Appendix Attached:** ☐ Yes ☒ No **Title:**
The clinical pharmacist (RPh) or registered nurse (RN) or registered practical nurse (RPN) may provide verbal or written order(s) for INR (international normalized ratio) laboratory investigations to monitor warfarin therapy when needed. Verbal order includes verbal communication to the patient and/or caregiver over the telephone under an existing active laboratory requisition. Written orders include providing a laboratory requisition, house call request or written prescription in person or by fax.	
Recipient Patients:	**Appendix Attached:** ☒ Yes ☐ No **Title:** Appendix 1: Authorizer Approval Form
1) All patients 18 years and older and; 2) Rostered to Caroline Family Health Team (C-FHT) physicians who have signed the attached authorizer approval form (Appendix 1) and; 3) Require warfarin therapy previously initiated by a physician.	
Authorized Implementers:	**Appendix Attached:** ☒ Yes ☐ No **Title:** Appendix 2: Implementer Approval Form
C-FHT Clinical Pharmacist (RPh) and C-FHT Registered Nurses (RN) or Registerd Practical Nurses (RPN) (Appendix 2)	
Indications:	**Appendix Attached:** ☐ Yes ☐ No **Title:**
Indications for INR laboratory investigations include but are not limited to the following: 1) Routine monitoring of warfarin therapy 2) Non-therapeutic INR results (subtherapeutic or supratherapeutic results) 3) Recent change in warfarin regimen 4) Recent initiation/discontinuation of medications/herbal products that may interact with warfarin 5) Recent dietary or lifestyle changes that may impact INR 6) Prior to planned procedure 7) Signs/symptoms of minor bruising/bleeding 8) Noncompliance with warfarin regimen (i.e. missed doses, wrong dose) Routine INR monitoring for patients receiving warfarin for the following indications: 1) Primary and secondary prevention of venous thromboembolism 2) Prevention of systemic arterial embolism in patients with tissue or mechanical prosthetic heart valves, valvular heart disease, cardiomyopathy, or atrial fibrillation 3) Prevention and recurrent systemic embolism in patients with atrial fibrillation	

4) Prevention of acute myocardial infarction in patients with peripheral arterial disease
5) Prevention of stroke, recurrent infarction, and death in patients with myocardial infarction
6) Treatment of venous thrombosis, pulmonary embolism, antiphospholipid antibody syndrome or thrombophilic conditions

Contraindications:

1) Patients actively bleeding or at high risk of bleeding (i.e. high-risk surgery)
2) Patient identified by physician who would not be a candidate for INR management under this medical directive
3) Patients under 18 years old

Consent:

Appendix Attached: ☐ Yes ☐ No
Title: Appendix 1: Authorizer Approval Form

1) Patients of C-FHT
2) C-FHT physician approval list (Appendix 1)

Guidelines for Implementing the Order/Procedure:

Appendix Attached: ☒ Yes ☐ No
Title: Appendix 3: Frequency of INR monitoring algorithm

1) RPh or RN/RPN may provide a verbal order over the telephone to the patient and/or caregiver for INR testing at the patient's choice of laboratory (the patient must have an existing active laboratory requisition)
2) RPh or RN/RPN may provide written orders (i.e. laboratory requisition, house call request, written prescription) in person or by fax for INR testing at the patient's choice of laboratory
3) RPh or RN/RPN may order routine INR laboratory investigations according to the algorithm outlining frequency of INR monitoring (Appendix 3)
4) RPh or RN/RPN may order additional INR laboratory investigations based on patient's unique circumstances and indications
5) RPh or RN/RPN will communicate plan of INR testing with patient and/or caregiver
6) RPh or RN/RPN will document plan of INR testing in the patient's medical record either as a progress note and/or within INR patient flow sheet

Documentation and Quality Monitoring Guidelines:

Appendix Attached: ☐ Yes ☒ No
Title:

1) Documentation in patient's medical record either as a progress note and/or within INR patient flow sheet to include: current date, current INR result, patient's current warfarin regimen, next INR laboratory investigation, date patient and/or caregiver notified, name of implementer.
2) Standard documentation is recommended for prescriptions, requisitions and requests

Review and Quality Monitoring Guidelines:

Appendix Attached: ☐ Yes ☒ No
Title:

1) Annual routine review by at least one member of medical directive authorizer, one member of implementer and Executive Director.
2) Any staff member who identifies any inappropriate, untoward or unanticipated outcomes resulting from this medical directive implementation will immediately notify the most reponsible physician and his/her program manager. The program manager, in collaboration with the sponsoring physician, will immediately trigger an ad hoc review

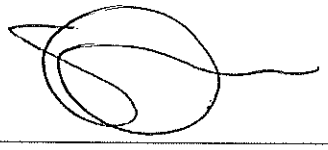
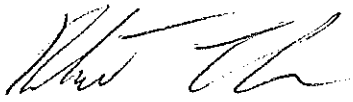
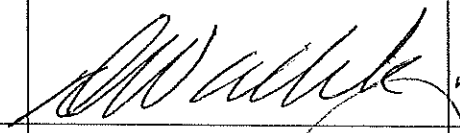
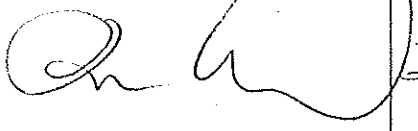
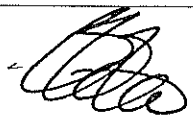
Approving Physician(s)/Authorizer(s):

Appendix Attached: ☒ Yes ☐ No
Title: Appendix 1: Authorizer Approval Form

C-FHT Authorizer Approval Form (Appendix 1)

Appendix 1: Authorizer Approval Form

Title: Ordering INR Laboratory Investigations to Monitor Warfarin Therapy
Number: C-FHT02

Name of Authorizer	Signature	Date
Dr. Lori Chalklin		22/6/16
Dr. Stephen Duncan		8/2/16
Dr. Alicia Gallacio		June 14/16.
Dr. Dana Pintea		9/6/16.
Dr. Robert Tohn		Feb 8. 2016.
Dr. David Wallik		Feb 8, 2016
Dr. Kim Walsh		7/6/16
Dr. Chris Williams		FEB 8·2016

Appendix 2: Implementer Approval Form

Title: Ordering INR Laboratory Investigations to Monitor Warfarin Therapy
Number: C-FHT02

Name of Implementer	Signature	Date
Michael Pe, RPh		02/09/2016
Carol Harris, RN		03/16/16
Deb Girodat, RN		07/12/16
Debby Hannough, RN		3/17/2016
Tracy Lang, RPN	Tracy Lang RPN	March 17 '16
Natalie Lasenby, RPN	Natalie Lasenby RPN	July 5/16 RPN
[redacted]		
Denise Ponnuthurai, RPN		03/16/16.
Lisa Ryan, RPN		03/17/16

Appendix 3: Frequency of INR Monitoring Algorithm

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This algorithm is meant to serve as a clinical guide and deviation may occur based on clinical judgment depending on various patient specific factors. The frequency of long-term INR monitoring is influenced by patient specific factors including patient compliance, changes in health status, interacting medications, and changes in diet.

The following frequency of INR testing is recommended for the following clinical scenarios:

1) If a patient's INR is out of target range, the next INR should be checked in 1 week.
2) If a patient has recently started, stopped, or changed the dose of an interacting medication, the INR should be checked in 1 week after change.
3) If a patient's INR is within target range, the following table can be used to determine the timeframe that the next INR should be checked:

Table 1: Frequency of INR testing when INR is within target range

Number of consecutive INRs within target range:	Next INR in:
1	1 week
2	2 weeks
3	3 weeks
4 and greater	4 weeks

According to the 2012 CHEST guidelines, INR testing frequency of up to every 12 weeks is recommended rather than every 4 weeks in patients with stable INRs. Stable INRs is defined as at least 3 months of consistent INR results with no need to adjust warfarin dosing. This strategy can be considered for selected patients at the discretion of the physician.

Table 2: Summary of recommendations

Clinical Scenario:	Next INR:
INR out of target range	1 week
Addition/discontinuation/dose change of an interacting medication	1 week from change
INR within target range:	
1 INR within range	1 week
2 consecutive INRs within range	2 weeks
3 consecutive INRs within target range	3 weeks
4 or more consecutive INRs within target range	4 weeks*

*In patients with consistently stable INRs, CHEST guidelines[1] recommend INR testing frequency of up to 12 weeks rather than every 4 weeks. Stable INRs is defined as at least 3 months of consistent results with no need to adjust warfarin dosing. **For patients with stable INRs, nurses may contact physician to determine if longer INR testing frequency (i.e every 6-8 weeks) may be appropriate.**